

MOHMED ESSAM

AI Engineer — Data Scientist

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📁 Portfolio

Education

Cairo University

B.Sc. in Computer Science (AI Specialization)

Sep 2020 – Jun 2024

Giza, Egypt

Experience

Code Cruze Company

Jan 2025 – Present

Junior AI Engineer

New Cairo, Egypt

- Developed and optimized AI pipelines leveraging LLM fine-tuning, Retrieval-Augmented Generation (RAG), and Context-Aware Generation (CAG) for domain-specific applications.
- Integrated advanced AI systems with relational databases (MySQL) and REST APIs, enabling seamless interaction between generative models and production services.
- Built and deployed containerized, scalable AI solutions using Docker, AWS (EC2, S3, Lambda), and LLMOps practices to ensure reliability and performance in production.

DI-BE (Remote)

Jun 2025 – Present

AI Backend Lead (Project-Based)

Abu Dhabi, UAE

- Developed enterprise social media analytics platform using **FastAPI**, **MongoDB**, **Qdrant**, **Ollama LLMs** achieving 95% accuracy in Arabic NLP classification.
- Implemented **RAG system** with semantic search, embeddings, and vector DB; automated real-time alerting pipeline.
- Optimized throughput 6x using multiprocessing + asyncio, boosting GPU utilization to 70%.
- Automated data pipelines and system integrations using **n8n workflow automation**, reducing manual intervention by 60%.
- Containerized services with Docker, deployed on cloud with monitoring (Prometheus).

Elgammal Electronics

Feb 2021 – May 2023

Hardware Engineer

Cairo, Egypt

- Automated unit testing framework in Python for hardware validation, cutting bug detection time by 40%.
- Collaborated with cross-functional teams on embedded systems troubleshooting and optimization.

Information Technology Institute (ITI)

Aug 2023 – Sep 2023

AI Developer, Summer Camp

Cairo, Egypt

- Hands-on training in probability, linear algebra, data wrangling, and neural network fundamentals.
- Implemented supervised/unsupervised models and mini-projects for image and text classification.

Certifications & Courses

- **IBM:** Data Science Professional, Python, ML, Data Visualization, Neural Networks
- **Mahara-Tech:** Generative AI (Transformers, GANs, VAEs, Multimodal Models)
- **HackerRank:** SQL Advanced, Problem-Solving (Intermediate)
- **365 Data Science:** AI Product Management, Conversational AI, Deep Learning with TensorFlow 2
- **Power BI:** Data Visualization, Business Intelligence

Projects

NLP Chatbot for Printrado | Python, NLP, MySQL, Docker, AWS

Jan 2025

- Developed customer-support chatbot with intent recognition and semantic search.
- Integrated with MySQL backend, containerized with Docker, deployed on AWS EC2.

Branch Optimization for Fawry | Python, Pandas, KDTree

Nov 2023

- Implemented KDTree spatial analysis for 1M+ records to optimize customer branch selection.
- Reduced query time from minutes to seconds, improving operational efficiency.

AI-Powered Telegram Bot | Python, NLP, MySQL, Docker

Feb 2024

- Built conversational bot with NLP for query handling and text classification.
- Deployed scalable solution with Docker + AWS for 24/7 customer interaction.

Vethub Website (GP, A Grade) | Python, NLP, CV

Jun 2024

- Developed chatbot assistant for veterinary doctors with NLP-based Q/A.
- Implemented Computer Vision pipeline for pet disease image classification.

Skills

- **Programming:** Python, C++, SQL — **AI/ML:** PyTorch, Hugging Face, Transformers, LLMs, LangChain, RAG, CV, NLP, n8n Workflow
- **Backend:** FastAPI, AsyncIO, REST APIs, Microservices — **Databases:** MongoDB, MySQL, Qdrant, Redis
- **DevOps/Cloud:** Docker, AWS (EC2, S3, Lambda), CI/CD, Uvicorn, Prometheus
- **Distributed ML:** Parallel Computing, Load Balancing, Decentralized ML (Bittensor, P2P Concepts), Model Sharding
- **Performance:** AsyncIO, Multiprocessing, CUDA GPU Optimization, Low-Latency Inference
- **Optimization:** CUDA GPU Acceleration, Parallel Processing, Performance Profiling
- **Tools:** VS Code, PyCharm, Jupyter, Git, Power BI — **Languages:** English (Proficient), Arabic (Native), German (Beginner)